

# Accept No Substitutes



By Lt. Stephen Lewis

Our mighty Orion was at FL195, in the eastern Mediterranean, in support of Operation Enduring Freedom. The flight engineer called out, “Chips light, No. 3,” with no secondary indications the reduction gearbox could be coming apart. Once we secured the No. 3 engine and completed the emergency-shutdown checklist, the aircraft became stable. We coordinated our route of flight home with ATC. The copilot, a seasoned patrol-plane commander, then led a discussion of “what ifs.”

With the No. 3 engine secured while at FL200, would our weight support a two-engine rate of climb if we were to have another engine malfunction that required shutdown? The answer was yes; we would have a 200-fpm rate of climb at that gross weight.

We secured the No. 3 engine because metal particles had accumulated on the magnetic plugs in the power section or reduction gearbox. NATOPS procedures call for a shutdown unless the emergency requires power. What conditions might occur that would require restarting the No. 3 engine? The pilot at the controls suggested an engine fire. The flight engineer agreed and added that an E-handle or power-lever vibration would be another reason to bring No. 3 back on line.

The No. 3 engine operates one of the two engine-driven compressors (EDCs), which control the air-conditioning and pressurization systems. A check of the No. 2 EDC showed it was capable of maintaining cabin pressure, and our altitude helped keep the aircraft equipment from

heating up. The PPC asked how we might handle a malfunction while on our only operating EDC. In that situation, we would alert the crew; coordinate a descent on oxygen, if necessary, to below FL100; and verify our minimum-operational-safe altitude (MOSA) en route with the navigator.

Moments later, as if on cue, we had a flickering and then steady press-low light on the No. 2 EDC. As we just discussed in our “what if” session, the copilot verified MOSA with the navigator and requested a descent to FL090. The flight engineer began to depressurize the aircraft to prevent a rapid decompression from occurring if the EDC failed during the descent. Below FL100, the flight engineer disconnected and dumped the No. 2 EDC, and we continued to our destination at NSA Souda Bay.

The navigator continued to provide MOSA updates and outlined a route to the north of Souda to avoid a mountainous terrain south of the airfield.

We had an uneventful three-engine landing at Souda. The crew handled the scenario well, partly because of our in-flight discussions of compound malfunctions. Rapid decompression can cause disorientation at best and, at worst, loss of aircraft and 11 aircrew. NATOPS is not a substitute for sound judgment, and it reminds us that “compound emergencies, available facilities, adverse weather or terrain, may require modification of the procedures contained within.” We experienced such an occasion, and, through sound CRM, we were fortunate enough to bring the aircraft and crew home safely. 🇺🇸

Lt. Lewis flies with VP-10.